REMARKS

1. Summary of Office Action

In the Office Action mailed May 15, 2006, the Examiner rejected claims 1-8 and 10-29 as being allegedly anticipated under 35 U.S.C. § 102(e) by U.S. Patent No. 6,564,267 (Lindsay).

2. Status of the Claims

By this response, Applicants have amended claims 1, 11, 22, and 25. Now pending in this application are claims 1-8 and 10-29, of which claims 1, 11, 22, and 25 are independent.

3. Summary of the Claimed Invention

Applicants' claimed invention is directed, in various ways, to a method and system of reducing message fragmentation when data packets are transferred between a data source and a data receiver. As set forth in the specification and various claims of the present application, a device, such as a Smart Traffic Engineer (STE), receives an announcement message containing information on a maximum segment size of a first connection between a data source and a data receiver. The STE determines a new maximum segment size that will generate a relatively fragment free connection between the data source and the data receiver. The determined maximum segment size will then be used for any subsequent data connections for transferring data over the network between the data source and the data receiver. By intercepting an announcement message and determining a new maximum segment size, the STE will drastically reduce, if not entirely eliminate, fragmentation of any subsequent messages being sent between the data source and the data receiver will not be fragmented during the transfer.

It should be understood that the preceding brief summary is intended to call attention to only certain aspects of Applicants' presently claimed invention that are relevant to the following discussion. Consequently, the summary should not be viewed as encompassing all aspects

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previously disclosed and/or claimed, or limiting the scope of Applicants' presently claimed invention in any new manner.

4. Summary of the Lindsay Reference

Lindsay is directed to a network adapter that "advertises a large packet data maximum segment size (MSS) to its host, even though it cannot support this MSS on its physical connection." *See* Lindsay at Abstract. Lindsay teaches that when the host tries to negotiate remote connection using the large MSS, "the adapter performs packet header manipulations such that the host believes it has negotiated a large MSS connection, and the remote endpoint believes it has negotiated a smaller, physically achievable MSS connection." *Id.* at Abstract. Further, Lindsay teaches that "[u]sing its knowledge of the local and remote MSS values, the adapter transparently segments the large packets into multiple smaller packets that are digestible by the remote endpoint and transmits these according to the remote endpoint's receive window." *Id.* at Abstract.

According to Lindsay, the network adapter establishes a MSS to send packets over the network, but then misinforms the host of the MSS that the network adapter is using to send data packets to the remote endpoint. The host, therefore, is unaware of what the remote endpoint is capable of handling and continues to send form large data packets, which it transfers to its network adapter. Lindsay explains that this is done to "decrease the workload of the CPU and decrease bus utilization by the adapter." *Id.* at Abstract. The network adapter then takes the burden of segmenting the large data packets sent from the host into smaller ones that the remote endpoint can handle.

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5. Response to Examiner's Rejections under 35 U.S.C § 102(e)

As noted above, in the Office Action mailed May 15, 2006, the Examiner rejected claims 1-8 and 10-29 under 35 U.S.C. § 102(e) as being allegedly anticipated by Lindsay. Applicants respectfully traverse the anticipation rejection, because the Examiner has not established that Lindsay teaches each and every element of independent claims 1, 11, 22, and 25. In particular, the Office Action has not established that Lindsay teaches a method of allowing a data source to send subsequent messages to a data receiver without fragmenting the messages while sending the messages.

Lindsay, as noted above, is concerned with reducing the workload of the host CPU. But by doing so, this has the effect of essentially guaranteeing message fragmentation when sending messages from the host to the remote endpoint. In particular, Lindsay teaches a method of allowing a network adapter to perform packet header manipulations such that the host believes it has negotiated a large MSS connection, and the remote endpoint believes it has negotiated a smaller, physically achievable MSS connection. *See* Lindsay, at Abstract. According to Lindsay, the "host should then send large packets, corresponding to the large MSS, to the network adapter." *Id.* at abstract. Lindsay explains that this "decreases the workload of the host CPU and decreases but utilization by the adapter." *Id.* at Abstract. Further, Lindsay discloses that "[u]sing its knowledge of the local and remote MSS values, the adapter transparently segments the large packets into multiple smaller packets that are digestible by the remote endpoint and transmits these according to the remote endpoint's receive window." *Id.* at Abstract.

An example of a network adapter negotiating a large MSS with the host and a smaller MSS with the remote endpoint is discussed in Figure 5. Lindsay's Figure 5 discloses an

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embodiment in which a network adapter 42 has "indicated that to its host that it supports an MSS of, e.g., 8760 octets (six times the usable MSS for an Ethernet connection). But the network adapter 42's physical network connection only supports an MSS of 1460 octets." *Id.* at column 6, lines 16-20. According to Figure 5, Lindsay teaches that when a connection is established, the host "operates under the assumption that the remote endpoint has agreed to an MSS of 8760 octets and has supplied a window of 17560 octets." *Id.* at column 6, lines 60-63. And the remote endpoint, however, "operates with an agreed MSS of 1460 octets and an advertised receive window of 5840 octets." *Id.* at column 6, lines 63-65.

The resulting data communication is shown in Figure 6, which "illustrates a data transaction for a connection like the one negotiated in FIG. 5." *Id.* at column 7, lines 7-8. Because the remote endpoint 40 is only capable of dealing with a MSS that is actually much smaller than the MSS reported to the host, network adapter 42, as shown in Figure 6, segments the 9K block of data from host 24 into six packets, each having a size 1.5K. *Id.* at Figure 6. Lindsay, in reference to Figure 6, explains that "[b]ecause the host in this example has avoided creating six separate packets and issuing six requests to the network adapter, it has reduced its packet processing overhead substantially." *Id.* at column 7, lines 56-59.

In effect, the network adapter in Lindsay does not inform the host of the remote endpoint's capabilities and allows the host to form large packets consistent with a larger maximum segment size that are then transferred to the host's network adapter. The network adapter then transparently segments the "large packets into multiple smaller packets that are digestible by the remote endpoint." *Id.* at Abstract. The fragmented packets that use the smaller MSS are then sent over the network to the remote endpoint.

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In contrast to Lindsay, each of Applicants' independent claims is directed to determining a maximum segment size that allows a data source to send messages to a data receiver without fragmenting the messages while sending the messages. Applicants submit that Lindsay's teaching of transparently segmenting data packets into smaller packets for a remote endpoint does not amount to Applicant's claimed method of determining a maximum segment size that reduces fragmentation when sending messages from a data source to the data receiver, and in fact, teaches the exact of opposite of Applicant's claimed invention.

In this regard, Applicants' independent claims 1 recites a method of "sending subsequent messages from the data source to the data receiver using the determined maximum segment size" wherein the "determined maximum segment size reduces message fragmentation". Similarly, Applicants' independent claim 11 recites "placing said maximum segment size into said announcement of said second connection in which messages are sent from the data source to the data receiver with reduced message fragmentation." Likewise, Applicants' independent claim 22 recites "sending subsequent messages from the data source to the data receiver using the determined maximum segment size wherein the determined maximum segment size reduces message fragmentation". In addition, Applicants' independent claim 25 recites a network device that "changes the maximum segment size of said communications to a determined maximum segment size that provides a reduction of message fragmentation in data transmission between said data source and said data receiver".

Thus, the Examiner has failed to establish that Lindsay teaches a method of determining a maximum segment size that reduces message fragmentation when messages are sent from a data source to a data receiver as required by each of Applicants' independent claims 1, 11, 22, and 25. Consequently, Lindsay does not anticipate any of these claims. Each of claims 2-8, 10, 12-21,

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23-24, and 26-29 depends from, and thus incorporates all of the limitations of, one of these independent claims. Thus, for at least the same reason, Lindsay also does not anticipate any of these dependent claims.

6. Conclusion

In view of the foregoing, Applicants submit that claims 1-8 and 10-29 are allowable, and thus Applicant respectfully requests favorable reconsideration and allowance of these claims. Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3305.

Respectfully submitted,

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